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BEFORE THE COMMITTEE ON COMMERCE, SCIENCE AND
TRANSPORTATION, SUBCOMMITTEE ON AVIATION
ON THE JOINT PLANNING AND DEVELOPMENT OFFICE**

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Good morning Chairman Burns, Senator Rockefeller, and Members of the Subcommittee.

Thank you for the opportunity to testify today about the multi-agency Joint Planning and Development Office (JPDO) and the work we are doing together to develop and deploy the Next Generation Air Transportation System (NextGen) while providing operational and safety enhancements that deliver benefits to our customers today.

Our nation's air transportation system has become a victim of its own success. We created the most effective, efficient and safest system in the world. But we now face a serious and impending problem, one that the FAA and this committee are well aware of. Demand for air services is rising, and could as much as triple over the next two decades. While the industry downturn following the attacks of September 11 temporarily slowed the growth in the aviation industry that began in the late 1990's, demand is growing rapidly. And we have to be ready to meet it.

The warning signs are everywhere. Flight delays and cancellations have reached unacceptable levels. Other issues, ranging from environmental concerns to the complexities of homeland security are placing additional stresses on the system.

If we fail to address issues such as increased capacity in a deliberate and focused way, we will suffocate the great engine of economic growth that civil aviation has become.

The FAA and the JPDO have taken a dual track yet complementary approach, keeping our eyes focused on the NextGen Vision while using existing technology to provide important and tangible operational benefits now and in the future to users of the National Airspace System (NAS). We are finding ways to make existing capacity work more efficiently through advanced technology and operational improvements, with many of these efficiencies not only providing relief today but helping to lay the foundation for the Next Generation System.

The JPDO now serves as a focal point for coordinating the research related to air transportation for agencies across the Federal government, including the Departments of Transportation, Commerce, Defense and Homeland Security, as well as NASA and the Office of Science and Technology Policy. The initiative achieved important milestones in 2005 towards designing the NEXTGEN system. The JPDO completed its internal organization and created eight government/industry Integrated Product Teams (IPTs) to break this large and complex project into manageable strategies. These strategies focus on those aspects of aviation that hold the keys to capacity and efficiency improvements – airport infrastructure, security, a more agile air traffic system, shared situational awareness, safety, environmental concerns, weather and global harmonization of equipment, and operations. The Teams work closely with our stakeholders to ensure that they have an early window into the planning process and that we take full advantage of

their expertise every step of the way. Further accomplishments to date are highlighted in the recently published “2005 Progress Report to the NGATS Integrated Plan” that was transmitted to Congress on March 10th as required by Vision 100.

We need the best minds in America across both the public and private sectors working on the task of creating a NEXTGEN system. To achieve this, we have established a Next Generation Air Transportation System Institute (the NGATS Institute) that allows stakeholders to get directly involved in the transformation process. And, while the Aerospace Industries Association (AIA) is the host for the Institute, it is co-chaired by the presidents of the Air Line Pilots Association and the Air Transport Association and open for participation by all segments of the industry.

What truly sets this new structure apart is that it minimizes duplication of effort and resources among Federal agencies and maximizes the input of the private sector toward a common goal – the creation of a NextGen system.

One of the common misconceptions about the NextGen initiative, however, is that we have to wait until 2025 to start seeing the benefits. FAA is currently implementing a system known as Required Navigation Performance (RNP). RNP uses on-board technology that allows pilots to fly more direct point-to-point routes reliably and accurately. RNP is extremely accurate, and gives pilots not only lateral guidance, but vertical precision as well. RNP reaches all aspects of the flight – departure, en route,

arrival, and approach. For example, in January 2005, in partnership with Alaska Airlines, we implemented new RNP approach procedures at Palm Springs International Airport, which is located in very mountainous terrain. Under the previous conventional procedures in use at Palm Springs, planes could not land unless the ceiling and visibility were at least 2,300 feet and three miles. With these new RNP procedures, air carriers with properly equipped aircraft can now operate with a ceiling and visibility as low as 734 feet and one mile. This lower landing minima has allowed Alaska Airlines to “save” 27 flights between January and November, 2005 - flights which would have otherwise had to divert to Ontario, California—an added distance of at least 70 miles. Given the current state of fuel prices, savings such as this can mean a great deal to an airline’s bottom line, to say nothing of passengers’ schedules and convenience.

Establishing an initial Network-Enabled Operations (NEO) capability is a high priority for the JPDO and its member agencies, given its fundamental importance to the success of the NextGen System. Current efforts focus on identifying the network architecture and enacting standards for information and safety data sharing. The Department of Defense (DoD) has already invested considerable resources in information technology and telecommunication research focused on NEO and information access and sharing. FAA, as well as the Departments of Homeland Security (DHS) and Commerce, are committed to developing network-centric information architectures that draw on the lessons learned by DoD. The opportunity now exists to synchronize these efforts, especially in the areas of data interoperability and compatible network-to-network interface mechanisms, and two on-going DoD initiatives – the synchronization of DoD and DHS classified networks

and DoD's development of its Net-Centric Enterprise Services – will serve as templates for this effort.

The benefits of this technology are clear. In 2005, the JPDO, FAA and an industry team showed how network-enabled concepts developed for military customers can be applied to Air Traffic Management. The Joint Network-Enabled Operations Security Demonstration connected seven existing Air Traffic Management and security systems distributed over 12 different locations. It showed how sharing information in real time across air traffic, air defense, and law enforcement domains could improve coordination and help agencies respond to a security incident more efficiently – thereby lessening the need for evacuations and scrambling fighter jets. The exciting part of the NEO demonstration is that it enabled communication between agencies' current networks, eliminating the need to throw out all the individual legacy systems and create a brand new mega-system, which would be prohibitively expensive. As a part of the “spiral development process” for NEO, an approach to systems development that makes continuous improvements and changes throughout the development process, the JPDO is planning a second joint agency NEO demonstration. In Fiscal Year 2007, the FAA will participate in the second NEO demonstration under the System Wide Information Management (SWIM) program. The President's budget proposal for Fiscal Year 2007 requests \$24 million for SWIM. FAA's investment in the second NEO demonstration will allow us to apply lessons learned to the acquisition phase of SWIM. SWIM will provide a secure NAS-wide information web to facilitate a transition toward network-based air traffic operations and allow the FAA to lead and participate system-wide in

network-enabled operations with system users, global air navigation service providers and other government agencies.

In its Fiscal Year 2007 budget request, the Administration proposed targeted investments, in addition to SWIM, to promote early implementation of core elements of the NexGen system. Additional initiatives that will serve as building blocks of the new system will be added to the mix as the Enterprise Architecture is fully developed and system requirements are established.

One of our most promising initiatives with potential for broad operational applications is Automatic Dependent Surveillance-Broadcast (ADS-B), a technology that could replace ground-based radar systems and revolutionize air navigation and surveillance by providing radar-like separation procedures in remote areas that cannot currently be served by radar; by providing near real-time, in-the-cockpit, aeronautical information such as weather and notices to airmen; by enabling capacity gains by reducing existing separation standards in all domains and airspace classifications; by supporting increased capacity through user-executed airborne spacing, sequencing and separation operations; and by providing improved information for traffic flow management and fleet management – all while reducing our infrastructure costs. ADS-B uses GPS satellites and ground-based transmitters to allow aircraft to broadcast their positions with greater frequency and accuracy than our legacy radar systems. Moreover, with ADS-B, future pilots will see exactly what the air traffic controller sees. For FY 2007, the President's budget includes

\$80 million for the FAA for the ADS-B program to begin moving toward nationwide deployment.

The ADS-B system was the key enabling technology for the Capstone demonstration program in Alaska. Capstone is a technology-focused safety program that seeks near-term safety and efficiency gains in aviation by accelerating implementation and use of modern technology, in both avionics and ground system infrastructure, with the goal of reducing the exceedingly high accident rate in Alaska for small aircraft operations, which was nearly five times greater than the national average. Through 2005, the program achieved significant safety and efficiency results. The use of ADS-B information by the Bethel Airport Traffic Control Tower continues to provide benefits to all Bethel operators by enhancing the ability to better balance arrival flows and demand when weather conditions at the airport deteriorate below visual flight rules conditions. Aircraft equipped with ADS-B have had a consistently lower accident rate than non-equipped aircraft. From 2000 through 2005, the rate of accidents for ADS-B-equipped aircraft dropped significantly--by 49 percent. That is real progress, and we will build on this success as we expand the use of ADS-B elsewhere in the country.

One of the first uses of ADS-B technology outside of Alaska will be in the Gulf of Mexico. We have recently signed a Memorandum of Agreement (MOA) with the Helicopter Association International (HAI), helicopter operators and oil and gas platform owners in the Gulf of Mexico to improve service in the Gulf. Using ADS-B technology, helicopter operators will transmit critical position information to the Houston Center,

enabling unprecedented Air Traffic Control services in the Gulf. This technology will also develop new air routes with improved separation standards for high altitude airspace.

These new technologies and procedures are vital both to improving our air traffic system today and to building the NEXTGEN system of 2025. To ensure we deliver these benefits as quickly as possible, FAA is incorporating NEXTGEN goals and targets into the agency's strategic planning process in a much more comprehensive way. The draft FAA Flight Plan for 2007-2011, released for public comment just last week, includes several major initiatives that support the transformation to the NextGen system. And we've added the NEXTGEN symbol in the Flight Plan to easily identify each initiative that supports the modernization of the National Airspace System.

As a result, the Flight Plan will now capture explicitly what we must do in the near term through the Integrated Product Teams to achieve the NextGen vision. In other words, it helps us to identify the pipeline and funding to implement new technologies and incorporate the operational concepts that will serve as the foundation for the NextGen system. This will provide both an internal process for ensuring commitments are met and an external process for communicating the FAA's progress to our stakeholders.

We recognize that there are many challenges in converting the JPDO's vision of the NextGen system into reality. Because the JPDO is not an implementing or executing agency, the FAA and the other JPDO partner agencies must work closely with the JPDO to develop an implementation schedule for the operational changes required as new technologies are deployed to realize the NEXTGEN vision. We intend to use the

construct of our existing Operational Evolution Plan (OEP) to help us. However, we will expand the scope of the OEP from a ten-year rolling plan focused exclusively on capacity to a plan that will take us from the configuration of today's National Airspace System (NAS) to tomorrow's NextGen system. In the new Operational Evolution Partnership (OEP), JPDO transformational operating concepts will be identified, rigorously evaluated, prototyped, and tested so they can be ready for transition into the NAS. Required operational implementation schedules will be tracked, as well as dates by which initiatives must be funded in order to meet those schedules.

The NAS and NexGen Enterprise Architectures will provide the backbone of this new OEP by specifying roadmaps for system and certification requirements, operational procedures, program phasing, and prototype demonstrations. This Operational Evolution Partnership will be the mechanism by which we inform our owners, customers, and aviation community of our plans and progress towards the JPDO vision, while assuring that the JPDO and the FAA are jointly on-track to deliver the NextGen system.

Cost will be a vital factor: we cannot create a NexGen system that is not affordable. We are working with the NGATS Institute to hold several workshops with our stakeholders so that the critical assumptions and uncertainties underlying any cost benefit analysis can receive scrutiny and validation for future use. The first of these workshops, focusing on the commercial aviation sector, was very helpful and has set the stage for a collaborative development of our assumptions on such issues as operations and equipage. We expect similar such engagement as we meet with representatives from other segments of the

industry, such as the General Aviation Community. Of course, even after we develop the basic assumptions, we will continue to work closely with the industry as we develop the cost models.

Our vision of the NextGen system is not limited to increased airspace capacity. Rather, it is one which encompasses the whole air travel experience – from the moment the passenger arrives at the curb of his departure airport to his or her exit from their destination airport. The NextGen system includes security, safety, and efficiency of passenger, cargo and aircraft operations. Technology will change the way America flies, and aircraft will be able to use information technology in a more robust way, with enhanced cockpit, navigation and landing capabilities, and far more comprehensive and accurate knowledge of real-time weather and traffic conditions.

The NextGen system will be more flexible, resilient, scalable, adaptive, and highly automated. The NEXTGEN operational vision is not just related to the air traffic management system alone, but also includes the preservation and growth of airports, heliports, and other future landing and departure facilities to incorporate fully the emerging system's benefits. This system will be built on a far more robust information network than anything we have seen to date, ensuring that the right information gets to the right person at the right time, while keeping the nation safe and the flow of traffic running smoothly. Finally, we will put more information directly into the cockpit of intelligent aircraft through sensors and satellites linked together through network communications.

One of the major products for the JPDO, and indeed, one of the critical elements in defining the NEXTGEN initiative itself, is the development of the Concept of Operations and the Enterprise Architecture. These documents define each NEXTGEN function, what the requirements will be, and how it will evolve. They are absolutely essential to the future development of the NextGen system.

The Concept of Operations is a document that provides the basic operational description of how the NextGen system will actually function. This kind of explanation, offered in one document, will be critical to developing the specific requirements and capabilities that for our national air transportation system in 2025. In a sense, the Concept of Operations is like an architect's preliminary drawings - it outlines what the system will look like, how it will function, and what its capabilities will be.

However, to adequately lay the groundwork and basic plans for the NextGen system requires another step in the process, developed concurrently with the Concept of Operations, and that's the Enterprise Architecture. The Enterprise Architecture represents the actual plan for how the NextGen system will be developed, much like a set of blueprints. This includes the systems that will be needed, the timing for their deployment, and how they will work together.

Both of these documents, the Concept of Operations and the Enterprise Architecture, are essential to defining the NextGen system and will guide the future investment and

capabilities, both in terms of research and systems development. The JPDO has made considerable progress on both products, and I am pleased to say that the first phase of the Concept of Operations was released this week on the JPDO website. It is now available for review and comment by our stakeholders, and we are anxious to receive their feedback. Other phases of the Concept of Operations will be released in the next few months, along with the Enterprise Architecture. We expect the completed versions of each set of documents to be complete by early next year.

The importance of developing this system of the future is also quite clear to policymakers in Europe, where a comparable effort is well underway. This presents both a challenge and an opportunity to the United States. Creating a modernized, global system that provides interoperability could serve as a tremendous boost to the aerospace industry, fueling new efficiencies while creating jobs and delivering substantial consumer benefits. Alternatively, we could also see a patchwork of duplicative systems and technologies develop, which would place additional cost burdens on an industry already struggling to make ends meet.

We are working to avoid that future by seeking out partnerships with our international counterparts. This year we have established steering groups with China, Japan, Canada and Mexico to facilitate cooperative activities on the design of the NextGen system. These groups are moving forward to pursue joint initiatives, such as ADS-B, SWIM, and Enterprise Architecture which are aligned with the required performance-based systems.

In addition, I just returned from the Farnborough Air Show, where I concluded an agreement with Jacques Barrot, the Vice President of the European Commission, which formalizes cooperation between the NEXTGEN initiative and its European counterpart, the Single European Sky Air Traffic Management Research (SESAR) program. The FAA and the EC intend to identify opportunities and establish timelines to implement, where appropriate, common, interoperable, performance-based air traffic management systems and technologies. This coordination will address policy issues and facilitate global agreement within international standards organizations such as ICAO, RTCA and Eurocontrol, and contribute greatly to the success of this critical initiative.

Our overarching goal in the NEXTGEN initiative is to develop a system that will be flexible enough to accommodate a wide range of users -- very light jets and large commercial aircraft, manned and unmanned aircraft, small airports and large, business and vacation travelers alike, while handling a significantly increased number of operations with a commensurate improvement in safety, security and efficiency. Research will continue to help us find the right balance between a centralized satellite and ground system and a totally distributed system, where aircraft “self-manage” their flight with full knowledge of their environment.

The current technological and operational improvements are positive steps down the road to building the NextGen system. If we are to see the benefits fully realized, however, it is absolutely imperative that we reform the financing system for the FAA. Over the next few years we will work to achieve better cost management; determine the best solution for our aging and deteriorating facilities; and, conduct research on convective weather to

reduce flight delays associated with summer storms. We strive to improve efficiency, while searching for innovative ways to provide safer services even more efficiently. However, we need to establish the financing of our current and future operations based on actual costs and investment requirements that will realize tangible benefits and increasing efficiency. As we decide how to wisely invest in our future, we will continue to work closely with our customers, our employees, and of course, Members of Congress.

Mr. Chairman, this concludes my testimony. I would be happy to answer any questions the Committee may have.